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L'objet de cet exposé est de fournir des informations fondamentales concernant le système et le contexte scolaire du Québec. Il s'agit de situer un projet de recherche qui porte sur l'environnement en classe au niveau du premier cycle de l'enseignement secondaire. Le document contient un bref historique du système scolaire québécois et une description des structures et de leur fonctionnement. Il décrit ensuite les programmes, le type d'enseignement et d'évaluation et traite du rôle du personnel enseignant et de ses syndicats. Il présente enfin la population retenue pour l'étude (élèves du niveau secondaire francophone de la région de Québec) et la matière choisie, soit les mathématiques.

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# THE QUEBEC EDUCATIONAL CONTEXT AND SCHOOL SYSTEM

National Report for the IEA
Classroom Environment Study:
Teaching for Learning

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R-140

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## INTRODUCTION

The intention of a "national" report is to provide basic information concerning the characteristics of the school system in Quebec. Although the report will focus most heavily on the particular level - the first cycle of secondary school - which will be the object of study of the Classroom Environment Study, we shall not hesitate, however, to bring in facts about the system as a whole where they seem necessary for a general understanding. As well, before beginning the report proper, it would probably be useful to take a very brief look at the evolution of the school system in Quebec over the course of the last 20 years or so, in that this was a period marked by enormous change in the educational sphere.

### Before 1960

In order to give some indication of the upheaval and change which characterized the educational milieu during the late fifties and sixties, the period leading up to those changes has been characterized - a little exaggeratedly, perhaps - as a kind of "scholastic prehistory". Some explanation would be helpful here. The population of Quebec is largely French-speaking, although for the last 300 years there has also been an English-speaking minority. At the beginning of the fifties patterns of school attendance for

the two groups were quite different. On the French side, since the population was less urbanized than the English, who were largely concentrated in the Montreal area, children had less access to secondary education. Nonetheless, a certain percentage continued their education after elementary school in general, scientific and commercial courses, at normal school, and so forth. Only a very small percentage continued their education in the context of the "classical colleges" (schools under the jurisdiction of various religious communities), an elitist system which was at that time the only avenue giving access to a university education and the more "prestigious" professions. Even then, of those students who started the classical course, more than half were generally eliminated during the first three years, which is equivalent to the first three years of secondary school. During the same period English children, who were more concentrated in urban areas, had greater potential access to both elementary and secondary education and proportionally more English-speaking than French-speaking students did attend secondary school. Some also went on to higher education before entering business, banking or other professions[1]. Altogether then, while this was a difficult period characterized by elitism and a certain apparent uniformity, it was nonetheless fruitful in terms of setting the scene for the transformations to come.

It was, however, during the late fifties and especially the sixties that things began to change. Both as a palliative and as an initial step toward a more complete transformation of the social order, the Government - then the main central power - undertook a reform of the educational system in the first instance; perhaps the political and economic spheres would follow. All this happened within the context of considerable internal pressure;

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1 G.B. Isherwood, R.E. Lavery, H.A. MacDonald, and R.G. Townsend, "Quebec Educational Labour Management Relations", McGill Journal of Education, Spring 1978, Vol. XIII, No. 1, pp. 33-34.

pressure related to ideology and changing counciousness, on the one hand, and demographic changes and increasing urbanization and industrialization, on the other.

The general situation in the West, and perhaps more particularly in North America, was not without making its influence felt either. One has only to look at the turmoil and rapid social change which followed the second World War and how this affected the younger generation; the crisis of values, the shaking up of secular institutions, unprecedented scientific and economic growth, technological change, the thrust toward democracy and the deification of consumption. In Quebec the result of these pressures in terms of education was a Royal Commission of Inquiry on Education and later, the implementation of reforms suggested in the Commission's report.

The Parent Reform

The Parent Report was the starting point of a re-evaluation of all aspects of the system of education in Quebec, and particularly in the sphere of secondary education. Starting in the early sixties, this meant both physical changes - huge new comprehensive secondary schools were built to accomodate the influx of students - and changes in terms of pedagogical structure and content. From this point on, instruction is available to all; not only that, there are also within subjects advanced, regular and remedial classes in order to meet the needs of all children. Boys and girls now attend classes together. As well there are two different avenues, one of general education and the other of professional training; however both options are offered under one roof, a step which was intended as a democratizing element. Finally a student's programme of study is, to some extent (though less so in the first cycle of

secondary school, however), "personalized" in that each student may choose from the array of programmes available those courses he believes best suit his needs, tastes and aspirations.

Where as the pre-reform secondary school offered a course of studies mainly intended to give a minority (i.e. those who as a result of chance or priviledge went on to secondary education) access to university studies, the secondary school of the post-reform era had to take into account the requirements engendered by an industrialized and urbanized society on the one hand, and to adapt itself to a mass of students with varying abilities, on the other.

To sum up, then, the process of modernizing, or at least beginning to modernize, secondary schools comprised a number of steps: first this meant making secondary education a public service available to all, then transforming the form and content of the programmes in order to accomodate both the great number and variety of students; and lastly it meant doing this within the context of social conditions that were entirely new.

Here at the present time, as is the case elsewhere in the West, attitudes with respect to education are changing from optimistic to uncertain.[1] Indeed the necessity of improving the content of the curriculum and certain personal aspects of school life has become evident. As well the economic situation is changing with the result that there seems to be a greater demand now for "generalists" as opposed to technicians or specialists; all of which highlights the uncertainty of the present situation and the

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1 O.C.D.E., "Les examens des politiques nationales d'éducation", L'innovation dans l'enseignement, O.C.D.E., 1979.

fact that it would be presumptuous to follow it too closely. As a result there is a concerted effort underway presently to rework the curriculum; at the same time there has been a move away from a certain exaggerated economic realism, a realism that was to some extent harmful to both culture and education[1].

Finally, to end this brief historical overview, we should not forget that this reform of education in Quebec was marked by a shift of power from the churches to the state[2]. One effect of this has been to give the Government the greater share of power - some would say an excessive amount - as far as educational matters are concerned, as well as leading to a lessened insistence on certain forms and content of education, the importance of "values" and discipline being examples of this. These are two more difficulties which those in education are presently trying to solve.

We will find all these elements, at the least as a backdrop, in the National Report. Our intention here is to delineate the structure and functioning of the school[3], the curriculum, the situation of teachers, and finally to describe the students and the subject matter chosen for this study.

---

1 c.f. Rioux, Marcel, "Quelle éducation? Quelle culture?", Possibles, Vol. 3, Nos 3 - 4, 1979, p. 210.

2 By churches we mean both the Catholic and Protestant churches.

3 We have relied heavily on a document prepared by the Planning Branch of the Ministry of Education in 1975, Review of Educational Policies in Canada: Quebec, while remaining cognizant of the difficulties inherent in describing such a system in so few pages.

# I - STRUCTURE AND FUNCTIONING

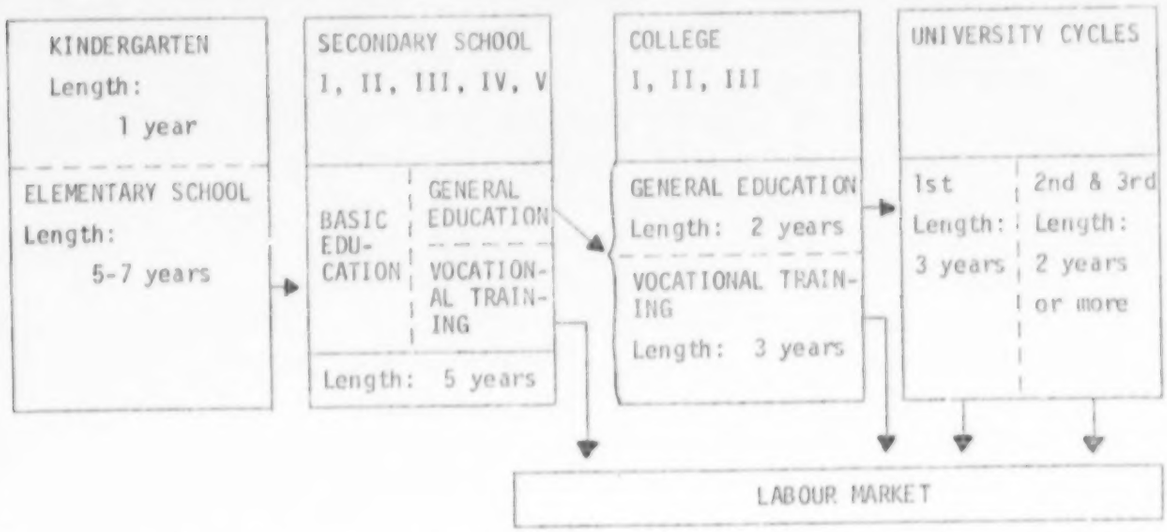
## I.1 General Features

In this section of the National Report we shall look at the legislation and regulations which establish certain basic facets of the educational system in Quebec, and particularly those which govern the age range which will be the object of study in this project.

Probably not unlike other school systems, the basic divisions of the educational system here are the following:

1) kindergarten: open to those children who have reached their fifth birthday before the first of October of the school year in question. The school calendar provides for five days of classes a week, although the child attends kindergarten half days only.

FIGURE 1. The education system and the possibilities open to the student.




Source: Review of Educational Policies in Canada: Quebec, p. 33. For figures on the student population at the elementary and secondary level, see Appendix I.

2) elementary school: attendance is compulsory for those children who have reached their sixth birthday before the first of October of the current year. At this level the student participates, (usually - there can be modifications) in 1500 minutes of instructional activity in the course of a five-day week. The distribution of official programmes is over a period of six years. However they may be completed in five years by "talented" children or in seven years by children who experience learning difficulties.

3) secondary school: the transition to the secondary school takes place after six years of elementary education, usually when the child is about 12. Students who have not successfully completed the program after six years may attend elementary school for a seventh year or change over to the secondary school by enrolling in a supplementary course. At any rate the child must transfer to the secondary school after seven years, at the age of 13. And there may be a few exceptional cases of children who go on after five years, at the age of 11, if they have completed the elementary course and are judged both socially and emotionally mature enough to make the change. The school calendar, as is the case at the elementary level, comprises at least 200 days, of which 180 are reserved for classes and student activities. At this level the student must attend 1575 minutes of classes and student activities during a five-day week. The secondary programme ordinarily comprises five years, where the first two years constitute a course of basic education and the following two or three years allow

for specialization in general or vocational education. The vocational programme has two components, the "long" vocational course which is of three year's duration and the "short" vocational which lasts two years; however both of these begin after the completion of the first cycle of secondary school. The idea behind the programme is to prepare those students enrolled in it for entry into the labour market directly after secondary school. School attendance is compulsory in Quebec until the age of 15.

4) College education: the CEGEP (Collège d'enseignement général et professionel - the acronym CEGEP is used in both English and French) is open to these students who have completed the secondary programme, i.e. who have a secondary school diploma in general education, and is composed of two educational streams. The college-level vocational programme is geared to increasing specialization and training for the job market and takes three years. The general programme, of two year's duration, is aimed at those students planning to pursue further studies at the university level.

5) University education: this level is open to those students possessing a Diploma of College Studies. There are 3 cycles, the B.A., M.A. and doctorate level with the B.A. level being a prerequisite for the Master's, and the Master's for the Phd.

From this brief description it is clear that the level that is of interest to the Classroom Environment Study is that group of pupils who have just made the transition from the elementary to the secondary school and who are mainly 12-13 years of age or perhaps very occasionally 11 years old.

## I.2 Objectives

The general objective of secondary education is to steer the student toward maturity and to give him more sophisticated methods of inquiry. To this end, secondary education must focus on:

"- the development of personal independence which will stimulate the student's sense of responsibility and motivate him to grow and mature;
- the emotional maturity of the student such that he is able to begin to identify his strengths and his weaknesses;
- the social maturity of the student such that he is able to begin to identify his value and his usefulness to the community;
- the discovery of moral values which require that he exercise judgement, and reflect upon the interrelationship between himself and the world"[1].

There are also more specific objectives. The secondary school must as well attempt the following:

"- to ensure that each student acquires and develops oral, verbal, cognitive and motor abilities;
- to give every student the opportunity to pursue a methodical and balanced exploration of the various fields of knowledge;
- to present every student with the possibility of defining for himself a function related to the cultural and economic development of society;
- to ensure that each student develops motivation toward continuing education with a view to personal enrichment and constant adjustment to the social and economic situation"[2].

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1 Review of Educational Policies in Canada: Quebec. Planning Branch, Ministry of Education, Government of Quebec, March 1975, p. 21.

2 Ibid, p. 22

## I.3 Structures

### I.3.1 Administration

Local school boards and regional school boards are the units of organization for schools of the public sector. The full range of instruction is also available in the private sector, although since private schools have been eliminated from the target population of the Classroom Environment Study, we will not be looking at private school organization in this report.

There are three levels which play a role in the administration of the educational system. These are:

- the Ministry of Education; responsible for the overall development of the educational system.
- the school boards; responsible for the implementation of general policies established by the Ministry and for the co-ordination of educational policies at the regional level.
- the schools; responsible for providing students with an education.

In this section we will be looking at the role of the school boards, in terms of their area of jurisdiction and modus operandi.

Whether we are talking about "local school boards" (responsible for education in elementary schools) or "regional school boards" (secondary schools) both are administrative units and have these features in common:

"-their composition, nature and terms of reference are specified in the acts administered by the Ministry of Education;

-they are all composed of representatives of interest groups (parents, teachers, students), whose appointment is prescribed by law;
-they constitute true decision-making bodies and are established as public corporations with corresponding powers. They are, however, obliged by law to consult their respective advisory bodies;
-they have the following general responsibilities:
a) to hire and administer educational personnel;
b) to ensure that the programmes used in the schools conform to the objectives laid down by the Ministry;
c) to acquire and administer the capital and non-capital items required for education;
d) to levy taxes and control expenditures;
e) to ensure the administration of the schools within their jurisdiction;
f) to develop and enforce internal regulations."[1]

The "local school board" is responsible for the education of those children within its jurisdiction at the kindergarten and elementary level. The "regional school board" represents a formal amalgamation of several local school boards in a given geographical area. The purpose of this association is to centralize the services for secondary education within a large area. In 1971 some school boards took advantage of the terms of the Act respecting the Regrouping and management of school boards by combining elementary and secondary education under one administration - hence the term combined school boards.

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1 Review of Educational Policies, op. cit., p. 53.

In fact the situation with respect to school boards was more complicated than this. Bill 27 (the Act respecting the regrouping of school boards) was one step in a process already underway across Quebec, a process designed to streamline the system of local school boards on the one hand, and to develop a system of regional school boards and hence secondary education, on the other. The rationale for these changes was to increase accessibility to high-quality educational services, regardless of an individual's geographical, financial or social situation. In the early 60's local school boards covered a limited territory and because of this were hardly able to gather sufficient students to offer high quality elementary education at a reasonable cost. In 1968 a plan for reorganizing the elementary sector proposed the formation of about 180 local school boards. It was according to this plan as well that the local boards were grouped into territorial units and placed under the jurisdiction of a regional school board. Thus between 1967 and 1971 the number of Catholic school boards dropped from 1300 to 884; in 1971 Bill 27 accelerated this process so that by July 1972 the number was approximately 180.

At the same time, though, the diverse institutions responsible for secondary education were being revamped, expanded and even built in order to create a system that would be accessible to all who had completed elementary school. The comprehensive secondary schools, administered by the regional school boards, were intended to give students the possibility of pursuing studies in general education or vocational training, to provide a solid

general base and at the same time a choice of options, especially after the completion of the first cycle.

### 1.3.2 School and Parents' committees

Each school board, local or regional, is composed of a Trustee's Council (elected by universal suffrage), an advisory body, and an administrative body. School Committees are the advisory bodies at the level of the local school board, and the heads of these committees form the Parents' Committee which advises at the regional level. Ideologically speaking the school committees and the parents' committees are important elements of the educational system. Some explanation may be in order here in terms of defining their importance more precisely.

These committees date from 1971, when their creation was made compulsory. They were intended as mechanisms that would increase the participation of the general public, and particularly parents, in determining guidelines for school life. The particular functions of the school committees are as follows:

- to encourage participation by parents and the community in order to improve educational services in the school;
- to study measures to promote more personal educational services in the school;
- to make recommendations to the administration in order to ensure the best possible operation of the school;

The functions of the parents' committee are:

- to ensure the proper operation of the school committees;
- to transmit the needs identified by the school committees and to direct general recommendations;
- to promote the participation of parents in all school board activities;
- to name members to the various school board committees;
- to recommend any measure that may improve the administration and management of the schools.

After a number of years in operation we now have an idea to what extent these committees have been able to fulfil their mandate. In 1977 the Government tabled its Green Paper on Elementary and Secondary Education. This was followed by a province-wide round of consultation. What came out of this process seemed to confirm the findings of a report made by the Federation of Parents' Committees of Quebec in 1975 as regards the operation of these committees. That report found that they have developped into very active structures in many instances, but that there was, nonetheless, a great deal of variation in their operation, from one milieu to another. In some areas these committees have decision-making powers on certain specific issues; in others, they are limited to almost token consultation on issues of minor importance. Thus some parents find their participation a source of satisfaction while others feel frustrated and discouraged. Even if parents are not yet in complete agreement on what form participation should take, between 70% and 80% (depending on the issue) of the parents

who responded to a survey concerned with ideas expressed in the Green Paper wanted to see more formal recognition of parents' right to participate in diverse spheres of school life.

In 1979 the Ministry of Education released its Policy Statement and Plan of Action; this document is the government's synthesis of and reaction to what was heard during the process of consultation on the Green Paper. The Ministry intends to reinforce these committees by making modifications in several areas. These modifications will have the intention of institutionalizing parental participation to a greater degree. Thus the committees will have more formal protection against a school system which, in various instances in the past, has felt threatened or hindered by parental participation, and perhaps all the more so since parents are not perceived as having any special competence that would justify their involvement in school affairs. As well the fact of a centralized, bureaucratic structure has tended to militate against effective parental participation. Thus it is the Ministry's intention to delineate the committees' areas of responsibility more clearly such that:

- consultation with them on certain pre-defined subjects will be compulsory;
- within the parameters established by law, school committees and parents' committees will have complete control over how, when and about what they meet;
- funds will be allocated for their use in order to ensure independence;

- the Ministry will offer programmes and guides for parents who want to work on such committees;
- there will be a parent representative on both the Executive Council and the Trustee's Council of the school board, and this representative (or the two representatives if it is a combined school board) will enjoy the same powers as other council members.

## I.4 Functioning

### I.4.1 Financing

The educational system in Quebec at the elementary and secondary levels is financed from three sources:

a) taxes levied directly by the local school boards (elementary education) based on the value of the real estate located in their areas. These taxes are used to finance the operations of both the local school boards and the regional school boards (secondary education).

b) grants from the Ministry of Education to school boards. Such grants make up the majority of their revenue. There are:
   - statutory grants for a part of the cost of such things as salaries, text books, notebooks and school transportation.
   - budget equalization grants which are established on the basis of budgetary norms and the average per pupil cost of educational services.

- special grants for the purpose of conducting special programmes.

c) revenue from the sale of bonds. School boards may issue bonds in their name with the proceeds being used to finance capital expenditures.

### 1.4.2 Religious and Linguistic Distinctions

School boards in Quebec are confessional being for the most part either Catholic or Protestant with a few "multi-confessional" boards. In addition to this division on a parochial basis, is one along language lines. In fact instruction is available in French and English from kindergarten to university. To a great extent, however, the Catholic sector encompasses French-language schools and the Protestant sector the English-language schools, though the correspondence is not 100% (particularly at the elementary level). Thus for the year 1978-1979 (the last year for which statistics have been compiled) there was a total of 251 school boards in Quebec which were divided as follows:

214 Catholic school boards:

- 40 regional school boards
- 142 local boards
- 3 dissentient boards (1 of these was inoperative)
- 29 combined school boards.

33 Protestant school boards:

- 8 regional school boards
- 19 local boards (8 inoperative)
- 3 combined, dissentient school boards (1 inoperative)
- 3 combined school boards

4 combined multi-confessional (i.e. Catholic and Protestant) school boards[1].

The regional school boards are grouped into regions for administrative purposes. There are 13 such regions in the province of Quebec. For the Classroom Environment Study we have chosen a part of one administrative region, Quebec, as the focus of study[2]. Thus of the 48 regional school boards in the province there were (again 78-79 figures) in the region of Quebec:

11 Catholic regional school boards

1 Protestant regional school board.

Furthermore of the 36 combined Catholic, Protestant and multi-confessional school boards in the province, there was but 1 combined Catholic school commission in the region of Quebec[3].

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1 Répertoire des organismes et des études: Statistiques de l'enseignement 1978-1979, MEQ. Quebec, septembre 1979, p. VIII.

2 The reasons for such a choice are obvious ones having to do with time, money and location of the research centre in relation to the target population.

3 For maps of the school administrative region 03 showing regional school boards, secondary schools, and the degree of concentration of low-income families, see Appendix II.

# II - CURRICULUM

## II.1 Programmes

What are the characteristies of a secondary school in Quebec? The physical set up of the school should facilitate, theoretically, the attainment of the general objectives of secondary education; learning by obtaining knowledge through instruction (information), learning by sharing knowledge with fellow students (exploration) and learning by discovering knowledge though individual research. The teaching areas of a comprehensive secondary school are grouped around the various departments. Each department comprises a teaching area equipped with a laboratory or work shop facilities (for professional training), or a library/resource centre. The teaching area can be subdivided with mobile partitions or screens, depending on the type of activities scheduled and the size of the groups.

It is perhaps important to repeat that programme organization at the secondary level is no longer based on the class as a unit as it was at elementary school, but rather on the student and an individualized timetable. No teacher has his own class to which he teaches several subjects. Instead students are grouped by subject and receive instruction from a teacher who is a specialist in the subject. The teacher meets several different student groups per day. In Quebec, the pupil-teacher ratio is about 17.1, a figure arrived at by a very complicated series of calculations. The maximum number of pupils per mathematics class is 30; sometimes this may go higher, for example to 33, in order to accomodate the various student timetables, but this would

normally be counterbalanced by a teacher's having 27 pupils in another class.

In Quebec the Ministry of Education, the school boards and the schools all have a part in developing the actual course content that will be taught to students in any given subject.

1) Provincial curriculum guidelines: The Ministry of Education issues curriculum guidelines for all compulsory and elective subjects taught in secondary school. Indeed in the case of certain compulsory subjects, mathematics being one, it issues 2 or 3 different versions in order to meet the needs of students enrolled in remedial, regular or advanced classes[1]. These guidelines are intended:

- to define a set of educational objectives for a given subject;
- to contain a sufficiently detailed outline of content to guide the teacher in his task;
- to establish the minimum ratio between the various components;
- to synchronize the learning of concepts and the psychological development of the child; and
- to propose different criteria for evaluating content and the acquisition of knowledge.

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1 Actually ministerial programmes are moving away from such distinctions in mathematics. Increasingly at the level we will be concerned with students are put in classes on a random basis and all classes cover the same material. At the same time additional more advanced programmes are being developed for those students who need mathematics in order to meet the requirements for the general education option at the CEGEP level. Whether or not this amounts to the same thing as grouping students by "ability" and calling it by another name remains to be seen.

2) Program outlines: At the level of the regional school board, the "teaching consultant" and representatives from each school have the responsibility of transforming the provincial curriculum into program outlines. The difference here is one of detail; the school board programme is more precise with respect to the objectives, content and teaching and evaluation methods outlined. As well, because these programmes are developped by specific regional school boards with their particular schools in mind, they are sometimes adapted to specific student groups with regard to content. For several years now the Ministry has provided assistance in the form of handbooks, documents, provincial or regional meetings and so forth, to enable school boards to revise these outlines periodically.

3) Course outlines: Ideally this is developed by a team of teachers from the same school. The outline defines the types of knowledge and skills that can be identified, observed, measured and acquired at school. For each course it outlines specific objectives, detailed content, recommended activities and tasks, performance criteria, methods of supervision and evaluation of student activity, a bibliography and the materials and methods to be used.

While the actual task of implementing these programmes is assigned to a school's teaching staff, teachers are assisted by their department head who co-ordinates the teaching of his particular subject in the school. As well each regional school board has a teaching service. This service comprises a number of specialists in various fields. Such specialists in mathematics are called "teaching consultants" and their job is to co-ordinate teaching activities in mathematics in

all the regional board's schools; for example they encourage the development of new instructional activities, they oversee the work of groups of teachers from the various schools on the development and refinement of the board's programme in mathematics, and so forth.

The Ministry of Education may also be involved here through its "educational development experts". These are teachers who are freed from their regular assignments for a period of 2 to 3 years. Their role is to meet with people or groups from a regional board who request their services.

Finally there are provisions for meetings between teachers, local administrators, teaching consultants and educational development experts. These meetings are usually held during the period of 20 days which is reserved in every school timetable for planning and evaluation[1].

## II.2 Type of Teaching

At the risk of being repetitious, it is perhaps important to point out again that the various subjects at the secondary level are taught by specialists in the particular subject. This is in contrast to the elementary level where there are "homeroom" teachers who deal with one group of

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1 (Regulation No. 7, which outlines the basic modalities of elementary and secondary education in Quebec, establishes a school year of 200 days, of which 180 are reserved for teaching and student activities; it is the other 20 days that are reserved for this type of activity).

students for several subjects. As well, the other big change for the student in secondary school is that the timetable is developped on an individual rather than a class basis.

In any given subject, however, there are no limitations or restrictions imposed by the Ministry of Education as to how instruction is to be given once in the classroom. In other words, whether a teacher lectures, whether he organizes the class into smaller sub-groups or whether he favours a more individualized or tutorial style of teaching, or some mix of the three, it is a decision left to the discretion of the teacher in order to give him the necessary flexibility in terms of meeting what he perceives as the needs of particular groups of students.

## II.3 Evaluation

It has been suggested that this report attempt to describe the "competitiveness" of the educational system, or the admission policies for students. It seems important to distinguish here between competitive admission procedures and competitiveness once within the system. The Quebec public educational system does not use competitive admission procedures. On the contrary, the various schools are obliged by law to accept students from the age of six until the end of the school year in which a pupil reaches his sixteenth birthday. The student, for his part, is obliged to attend school until the end of the school year when he turns fifteen.

At the secondary level, promotion is by subject; a student can advance in the usual manner or at an accelerated

pace in a particular subject, even if he falls behind in another. However, each subject includes an examination. If the student fails one of them he must, if he wishes to go on to more advanced courses in any one subject, repeat that course which is a prerequisite for the more advanced courses. The student receives a secondary school diploma from the Ministry of Education upon successful completion of secondary school.

More specifically evaluation in any given subject, such as mathematics, and particularly at the level of concern to us, is primarily the responsibility of the individual teacher in each class. At the present time, evaluation is not seen only as a series of exams, tests, projects or exercises, the results of which are used to rank or classify students. On the contrary, because it is recognized that a student's motivation is to some extent dependent on his success, the role of evaluation then becomes all the more important and comprises four steps:

- to evaluate each student's learning,
- to find out <u>what</u>, if any, difficulties he is having,
- to find out <u>why</u> these particular difficulties,
- armed with a more precise picture of any one student's difficulties, to take appropriate measures to help the student.

In a different vein, this process also gives the teacher a chance to see how effective his teaching has been in helping students to attain particular educational objectives.

From a preliminary and very informal inquiry into evaluation practices in regional school boards in an area around Quebec City, it is apparent that there is, nonetheless, wide

variation in the modalities employed from one board to another. In some regional boards, there is a board-wide final examination, with or without exemptions for "better" students; in others this is the responsibility either of individual teachers or all teachers of mathematics in a particular school. Generally speaking individual teachers have their own diagnostic tests, although in the case of one regional board, all tests, both for diagnostic and ranking purposes, were developped and are used at the regional level.

# III TEACHING PERSONNEL

## III.1 Regulations and Teacher Training

Present regulations for teacher certification date from 1966 and the issuing of Regulation No. 4. This regulation began the process of transfering the responsibility for teacher training from the old "normal schools", which offered different certificates based on 2, 3, or 4 years of study beyond secondary school, to the universities and in particular the affiliates of the University of Quebec.

With respect to secondary education, the universities offer a secondary teacher education programme. This usually consists of a 2-year major in a given faculty, with one year of courses in educational theory, and practice teaching. Another alternative is to complete the first cycle (3 years) by obtaining a bachelor's degree in a given major, and then add a fourth year in secondary education or educational theory.

The diploma granted at this point is not a permanent teaching certificate. What follows is a probationary period of 2 years of practical teaching experience. The new teacher's work is followed in the school by a probation council. This council provides encouragement and advice; it also eventually evaluates the teacher's competence and, in the normal course of events, recommends the teacher to the Ministry of Education for a permanent teaching certificate. The certificate thus obtained is specific as regards the teaching subject (university major), the level (elementary or secondary) and the sector (English- or French-language).

While this is the normal course of events in theory, in reality the situation of mathematics teachers is somewhat different. The preceding description gives the impression that every year new teachers are being hired, doing the 2-year probationary teaching period and getting their permanent certificates. While it is true that universities continue to train new teachers, generally speaking not many graduates are finding permanent jobs in teaching. In one regional school board (which will be included in our sample) the average number of years of teaching experience was 19.75, with a maximum, in one case, of 46 years and a minimum of 8 years. The implications relative to supply and demand are obvious. This also means is that a very large number of mathematics teachers are products of the era of the "normal schools" rather than of the teacher training programs presently offered within the university context. Therefore in addition to the programmes provided at various campuses, the University of Quebec offers an in-service training programme for mathematics teachers called PERMAMA. This programme is designed to reach teachers in their own working environment by means of printed and audio-visual materials and through services provided by local or regional group leaders and professors from the University of Quebec. In the region of Quebec City, for example, meetings are held one evening a week. Teachers have a choice of materials (i.e. all are not obliged to do the same course at the same time) relating to such areas as content, teaching methods, the application of mathematics and research projects. The earning of a credit may take from one to two months, and 30 credits equal 1 school year; each 30 credits up to the earning of a B.A. also gives the teacher a corresponding salary increase ($1500).

Other in-service provisions are for various information and training sessions which are held during the days allotted in the collective agreement for professional development. Such sessions ("mises à jour") are compulsory for teachers and may deal with new topics to be included in the school board's programme. (In the new programme being developped for mathematics in *Secondaire I & II*, such sessions were or will be held relative to the teaching of statistics and probability which are new areas for the first cycle).

Once a teacher has a permanent teaching certificate (and has undergone whatever supervision and evaluation there was leading to its being granted) there is no further systematic evaluation of his or her performance in the classroom. Attempts were made a few years ago to institute such a system, but nothing came of them.

Nevertheless the teacher has little real autonomy even though he is not evaluated. The problem of controlling to some extent what goes on in the classroom has been dealt with in another way. The tendency has been for the programme to become more and more precise in terms of content and the time allotted to it. As well, some school boards develop exams that are used in all the secondary schools in the jurisdiction, thus obliging a certain standardization. In fact the programme specifies what to teach, how long to teach it, how to evaluate it and how many points it is worth in the yearly total. The point of all this is to reduce students' failure rate on certain subjects. In the past a teacher might have decided that geometry was not a really important area and have acted accordingly; this is no longer possible. Thus while teachers enjoy a certain autonomy if we equate

this with freedom from personal evaluation and choice as to whether to lecture, instruct small groups or use a tutorial style, as mentionned earlier, other aspects of the job are controlled to an ever greater extent.

## III.2 Teacher Unions

As previously described, the last twenty-odd years have been years of great change in the educational sphere. Among these changes are the rapid centralization in terms of the provincial government's control over certain aspects of education and, as a counterweight to this, the unionization and politizing of teacher organizations.

Each school board has a local affiliate of a larger provincial teacher union. In Quebec there are three teacher unions. The largest and most influential of these is the Centrale de l'enseignement du Québec (CEQ) which, in the mid-seventies, represented over 65,000 members working in French Catholic school boards[1]. Thus the teachers we will be dealing with in the Classroom Environment Study are represented by the CEQ. Teachers from English Protestant boards (numbering some 6,700) and Catholic teachers in English schools administered by French Catholic boards (some 5,000) are both represented by different unions.

Teachers, like everything else, were greatly affected by the changes of the sixties. Their situation, which had

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1 Isherwood et al., op. cit., pp. 32-33. These unions represent other than just teaching staff.

reached a low point during the fifties, was substantially improved by the reform, giving them better training, better working conditions (with uniformity of conditions from one board to another) and better pay. Teacher associations became unions at this time, meaning that they were recognized as teachers' official representatives in bargaining for salary, workload, and many other aspects of the job. The collective agreements regulating teachers' working conditions are negotiated principally by representatives of the unions with the government, although the school boards are represented at the negotiating table by their respective associations (the Fédération des commissions scolaires catholiques du Québec and the Quebec Association of Protestant School Boards).

The unions, and in particular the CEQ, have been getting more militant (teachers have struck on several occasions) and are the main force counterbalancing the power of the government. It is important to realize that the collective agreement regulates all conditions affecting teachers in the schools, down to the number of minutes of instruction per week and the exact nature of a teacher's duties in terms of both teaching and non-teaching responsibilities.

Teachers rely on the union and the collective agreement to protect the rights they have already acquired. This is because teachers now find themselves in a more precarious situation, and one that has changed considerably since the sixties. At that time, it was clear that Quebec was experiencing a "baby boom" equal to or greater than that faced by most developed countries after the war. The birth rate went from a high of 31 per thousand after the war to a low of 14 per

thousand in 1972[1]. Coupled with the decision to make education, especially at the secondary level, a service accessible to all irrespective of geographical location or social class, this population "explosion" created an unprecendented situation and led to an expansion of facilities for training teachers. Now the pendulum has swing back; the birth rate has remained low and Quebec, as many developed countries do, faces a difficult period with respect to the economy generally. Thus the situation presently is one where a large number of teachers are competing for jobs in an era of financial restrictions and a diminishing student population plus a corresponding reduction in the number of schools.

In order to cope with difficulties arising from this situation, seniority has been used as a primary criterion for choosing between teachers, but obviously this is not without disadvantages. This means that any lay-off or re-assignment of teaching staff will affect younger teachers in the first instance. This accentuates the current state of affairs with respect to secondary-level mathematics teachers, which is that the great percentage of them (about 60% in the administrative region 03)[2] are between the ages of 35 and 44. Thus when we talk about a teacher with the "least" seniority whose working situation is unstable (he may be sent to another school, may have to teach another subject and may not get his assignment clarified until the end of October) we are talking about someone, as far as the region around Quebec City in concerned, with 8 or 9 years' teaching experience.

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1 Review of Educational Policies, op. cit., p. 7.

2 Another 16.5% are under the age of 35, and the rest, 25.5%, over 45. Statistiques Générales portant sur les travailleurs à plein temps; CEQ.

This phenomenon of the "aging" of the teacher population also means that many of these teachers, although they teach in the secondary system where subjects are taught by specialists (i.e. a mathematics teacher meets several classes a day rather than having classes organized around a "homeroom" teacher who instructs one group in several subjects) are themselves the product of the now-defunct system of teacher training ("normal" schools) which was not geared to the production of specialists. Sometimes this is the cause of a certain tension among teachers, although to what extent this is true of mathematics teachers is hard to say. In general terms the problem is one of finding some middle ground which will permit the reconciliation of two opposed concerns. These concerns are how to do justice to those who were trained as generalists and whose seniority is therefore in their favour, on the one hand, as opposed to those younger teachers who were trained as specialists but whose lack of seniority counts against them, on the other. The important question is to find a way to respect seniority, while at the same allowing for the introduction of new blood.

It seems clear, then, that the teacher unions have the difficult task of representing and defending their members in a period characterized by a certain tension and instability. These are the principle elements that are important for an understanding of the situation which presently confronts teachers; although we will eventually be looking at teacher characteristics in greater detail, we will wait until we have contacted teachers for the study to do so[1].

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1 However, for some very general statistics on teacher characteristics, (for the province and the region 03) i.e. age, sex, years of schooling and years of teaching experience, see Appendix III.

# IV STUDENT POPULATION SELECTED FOR STUDY

## IV.1 Definitions

### IV.1.1 Definition of the Target Population in Geographical Terms

We have defined our population as all French-language secondary schools (but within those schools, excluding classes where students are defined as experiencing learning difficulties) in the area of Quebec City and all the territory that lies within a twenty-five mile radius of the city centre. This territory is all within the school administrative region 03 (Quebec) although it does not, by any means, include all of it, and covers six regional school boards. By eliminating English-language schools, we have de facto eliminated schools administered by the one Protestant regional school board in 03 since it has no schools here at the secondary level where instruction is given in French. Application of the same criterion to the Catholic sector (i.e. English Catholic Schools) results in the elimination of only two schools.

It is, nevertheless, of interest to note the numbers of secondary schools according to the language of instruction for Quebec as a whole and for the region 03[1] in order to get a rough idea of the distribution of schools by language and to see, by deduction, that the area of interest to us is one with a high concentration of French speakers.

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1 However somewhat less French-language schools will be in our sample due to the fact that we will not be taking all of the region 03.

TABLE 1

| | | Province | Region 03 |
|---|---|---|---|
| SECONDARY SCHOOLS: | French | 511 | 98 |
| | English | 112 | 4 |
| | French and English | 10 | |
| | | 633 | 102 |
| COMBINED ELEMENTARY AND SECONDARY SCHOOLS: | French | 109 | 9 |
| | English | 78 | |
| | French and English | 18 | |
| | | 205 | 9 |

Source: Statistiques de l'Enseignement 1978-1979: Répertoire des Organismes et des Ecoles, p. 5.

### IV.1.2 Definition of the Target Population in Terms of Age

In the Classroom Environment Study we will probably be looking at children in both *Secondaire I and II*. This is dictated by our choice of algebra as the teaching unit to be observed and the fact that schools are currently in a period of changeover from an "old" programme to a "new" programme. This means that in some schools algebra is introduced for the first time in *Secondaire I*, in others *Secondaire II*.

For *Secondaire I*, then, we are talking about children of mainly 12-13 years of age who have just changed over to the secondary school. Regulation No. 7 states that it is usual for a child to go on to the secondary level after six years of elementary school, but compulsory after seven. This group of 13 year olds - those who stayed seven years in elementary school - is an important one, for it is now felt that a not insignificant number of them may need the help of make-up

courses in French, English or mathematics to make the transfer more successfully. It is also felt that a certain portion of time at the beginning of the first year in secondary school should be devoted to revision in order, first, to ensure some continuity between elementary and secondary school and secondly, to attempt to reduce the effects of the diversity of students' previous learning at the elementary level. This is borne out by an examination of selected mathematics programmes for *Secondaire I*; there is little really "new" material, although of course many areas are dealt with much more extensively. In the Ministry's "new" programme which is gradually being adopted, algebra will eventually be taught everywhere for the first time in *Secondaire II*.

If we deal with classes from *Secondaire II*, the majority of students will, therefore, be 13-14 years old, again with a small percentage of slightly older and younger children[1].

## IV.2 Characteristics of School Life

The changeover from elementary to secondary school implies a good deal of adjustment for the student. The first year in particular is a period of transition, and this not only in terms of the actual move from one school to another

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1 For statistics on the total student population in elementary and secondary school, for both the province as a whole and the region 03, see Appendix I.

(and the difference this may imply in terms of the number of students per school) and from being within the jurisdiction of a local board to that of a regional board. There are two profound changes at the secondary level in terms of pedagogical structure.

1. Promotion is by subject (although as a general rule, the difference in the level of the various subjects in which a student is enrolled may not exceed the equivalent of two grades).
2. The secondary program is given over a period of five years; it is not divided into sections or distinct courses but it covers all the subjects presently taught from the seventh to the eleventh year.
3. Nevertheless, a certain number at obligatory courses (these to be determined by the Ministry) will remain and the student must successfully complete these in order to get the secondary school certificate.

In practical terms these differences in pedagogical structure mean a number of changes to which the secondary school student must adjust.

1. There is a transition from the traditional class or grade system to the subject group. Thus students are grouped by subject, and are together for a specific period which does not necessarily correspond to the school year. In addition it means that a student who fails a subject is no longer obliged to repeat <u>all</u> the courses of a particular grade which he has failed; nor is he necessarily obliged to take that course again, although this will be modified with the introduction of certain compulsory

courses which must be completed successfully.

2. The transition from the homeroom teacher to the specialized teacher. Because students are now grouped by subject, most disciplines in the comprehensive secondary school are taught by specialists. However in order to counter the depersonalizing effects of such an organization, groups of students are assigned to particular teachers. It is the responsibility of these teachers to do some of the things that a homeroom teacher does, such as act as a liaison person between the student and his other teachers, between the school and the parents and generally help the student deal with problems he encounters in the course of his studies.
3. The transition from the classroom to the subject room. Students now move from room to room, as certain rooms are assigned for the teaching of a particular subject matter.
4. The transition from the class timetable to the student timetable. Thus the students who assemble at a given hour in a given room to take a given course have perhaps been with different groups an hour before. Each student must develop an individual timetable, although this is less of a problem for those students in the first cycle where there are no options.

It is within the context of these changes that the student continues his studies at the secondary level.

# V THE SUBJECT MATTER

## V.1 Mathematics Curriculum

Although we will eventually include all relevant particulars of the mathematics programme as outlined by the Ministry for the first cycle of secondary school, we will not do so at this time because the programme has not yet been translated into English. In fact, work is in progress presently on standardizing, to a greater degree, the teaching of mathematics across the province. This new programme must be adopted by all regional school boards by September 1982; however some boards have already adopted the new programme in its entirety while others are doing so gradually.

## V.2 Instructional Unit Chosen

In choosing a part of the mathematics programme as suitable for the Classroom Environment Study we have felt bound by several considerations. First, there is the fact that the programme is in the process of change, which means that choices are limited to parts of the programme which are present in both the "old" and the "new" programme. Secondly proposals for the study have stressed the importance of choosing a unit with minimal prerequisites in order to reduce the effects of previous learning as much as possible. This is doubly difficult since the "old" programme is still being used in many school boards and in that programme, there is a lot of emphasis, in *Secondaire I* particularly, on revision of what was covered in elementary school. The purpose of this is to put students on an equal footing. Therefore the number of really new topics is limited. Finally we are limited to

units of instruction of an "appropriate" length which will be taught during the period (January to May 1981) set aside for the class observations. Taking all these factors into account, it looks almost certain that the introduction of algebra, either in *Secondaire I or II* depending on the regional school board, will be the instructional unit.

We have not yet developed tests based on the learning objectives in algebra.

SUMMARY

We began by describing, in very general terms, the "modernization" of the whole educational system in Quebec, a process which began in the early sixties, and whose effects are still being felt today. One of the very important results of these changes was the increased accessibility of certain groups to educational services and this particularly in terms of secondary education which, up until then, had not been conceived of as a public service which ought to be available to all who have completed elementary school. We then described the different stages of this revamped educational system (i.e. kindergarten, elementary and secondary school, CEGEP and university) with particular emphasis on schooling at the secondary level and the general cognitive and affective objectives it seeks to attain.

The Ministry of Education, the school boards and the schools themselves all have clearly defined spheres of influence in terms of the administration of the educational system. Every secondary school is under the aegis of a regional school board, a public corporation which has the responsibility of administering a number of schools within a given territory. Each school has an advisory committee composed of parent representatives and the head of each of these committees is also part of an advisory committee at the level of the regional school board. Their role is to provide parent input into the system. We also talked very briefly about how schooling is financed, which is through a mixture of taxes levied by local school boards and government grants based on cost per capita calculations. Finally the existence of two distinct sectors, Catholic and Protestant, and the availability of the full range of educational services in French and English were both mentionned.

We next talked about curriculum development in general terms. It is the Ministry which initially puts out curriculum guidelines, which are expanded by the staff of the regional school board, and adapted to the needs of particular groups of students by teams of teachers from the regional board's schools. How students are evaluated, especially at the level of interest to us, (the first and second year of secondary school) is left primarily to the judgement of individual teachers and school boards.

The rest of our report deals with areas of more immediate concern to the Classroom Environment Study, that is, teachers, students, and the subject matter we have chosen. Decisions relative to the student population and the instructional unit within the mathematics programme selected for this study are relatively firm, barring some unforeseen circumstance. As we explain in the text, the major "problem" that confronts us, if indeed it is a problem, is that the time span indicated for the completion of Phase I and Phase II of the study is one that corresponds to a period for the development of, and the transition to, a "new" mathematics programme in the first cycle of secondary school. Practically speaking, this means that the number of suitable instructional units is fairly limited, given study constraints. Then we described the situation of teachers in terms of training and certification, and also union affiliation. We have tried to convey some impression of the fact that this is a difficult period in education due to financial restraint, and a shrinking school population, which makes this is a period of insecurity for teachers.

Parts of the report which are incomplete are so in the sense that we will be doing further work on them in the months to come. This applies, for example, to information concerning the teachers participating in the study, the mathematics programme generally

for *Secondaire I and II*, the specific cognitive objectives of the instructional unit chosen, which is algebra, and the characteristics of the students in question.

APPENDIX I

TABLE 2

STUDENT POPULATION AT THE ELEMENTARY AND SECONDARY LEVEL BY LANGUAGE OF INSTRUCTION, 1976-1977

The Whole of Quebec

| Level and year of Instruction | Language of Instruction | | |
|---|---|---|---|
| | French | English | Total |
| PRE-KINDERGARTEN | 3 189 | 386 | 3 575 |
| KINDERGARTEN | 75 524 | 11 202 | 86 726 |
| Half-Day | 72 934 | 10 887 | 83 821 |
| Whole day | 2 590 | 315 | 2 905 |
| ELEMENTARY | 474 397 | 94 267 | 568 664 |
| 1 | 73 805 | 14 037 | 87 842 |
| 2 | 71 104 | 14 359 | 85 463 |
| 3 | 71 603 | 14 834 | 86 437 |
| 4 | 76 832 | 15 445 | 92 277 |
| 5 | 83 283 | 16 844 | 100 127 |
| 6 | 90 807 | 18 379 | 109 186 |
| 7 | 6 963 | 369 | 7 332 |
| SECONDARY | 459 385 | 99 651 | 559 036 |
| General | 367 146 | 84 795 | 451 941 |
| Professional | 92 239 | 14 856 | 107 095 |
| 1 | 89 789 | 19 342 | 109 131 |
| 2 | 88 172 | 19 796 | 107 968 |
| 3 | 89 124 | 20 019 | 109 143 |
| 4 | 97 681 | 20 388 | 118 069 |
| 5 | 94 619 | 20 106 | 114 725 |
| SUB-TOTAL OF REGULAR STUDENTS | 1 012 495 | 205 506 | 1 218 001 |
| ADAPTATION AND LEARNING DIFFICULTIES | 84 896 | 15 731 | 100 627 |
| Kindergarten | 380 | 35 | 415 |
| Elementary | 53 232 | 11 514 | 64 746 |
| Secondary | 31 284 | 4 182 | 35 466 |
| TOTAL STUDENT POPULATION | 1 097 391 | 221 237 | 1 318 628 |
| Pre-kindergarten | 3 189 | 386 | 3 575 |
| Kindergarten | 75 904 | 11 237 | 87 141 |
| Elementary | 527 629 | 105 781 | 633 410 |
| Secondary | 490 669 | 103 833 | 594 502 |

TABLE 3

STUDENT POPULATION AT THE ELEMENTARY AND SECONDARY LEVEL BY LANGUAGE OF INSTRUCTION, 1976-1977

School Administrative Region: Quebec 03

| Level and year of Instruction | Language of Instruction | | |
|---|---|---|---|
| | French | English | Total |
| PRE-KINDERGARTEN | 471 | | 471 |
| KINDERGARTEN | 14 165 | 119 | 14 284 |
| Half-Day | 13 574 | 119 | 13 693 |
| Whole day | 591 | | 591 |
| ELEMENTARY | 86 782 | 1 507 | 88 289 |
| 1 | 13 503 | 159 | 13 652 |
| 2 | 13 093 | 212 | 13 305 |
| 3 | 13 154 | 263 | 13 417 |
| 4 | 14 069 | 274 | 14 343 |
| 5 | 15 201 | 284 | 15 485 |
| 6 | 16 516 | 321 | 16 837 |
| 7 | 1 246 | 4 | 1 250 |
| SECONDARY | 86 527 | 2 261 | 88 788 |
| General | 67 827 | 2 231 | 70 058 |
| Professional | 18 700 | 30 | 18 730 |
| 1 | 16 546 | 374 | 16 920 |
| 2 | 16 400 | 377 | 16 777 |
| 3 | 16 239 | 414 | 16 653 |
| 4 | 18 548 | 547 | 19 095 |
| 5 | 18 794 | 549 | 19 343 |
| SUB-TOTAL OF REGULAR STUDENTS | 187 945 | 3 887 | 191 832 |
| ADAPTATION AND LEARNING DIFFICULTIES | 15 478 | 325 | 15 803 |
| Kindergarten | 27 | | 27 |
| Elementary | 9 320 | 236 | 9 556 |
| Secondary | 6 131 | 89 | 6 220 |
| TOTAL STUDENT POPULATION | 203 423 | 4 212 | 207 635 |
| Pre-kindergarten | 471 | | 471 |
| Kindergarten | 14 192 | 119 | 14 311 |
| Elementary | 96 102 | 1 743 | 97 845 |
| Secondary | 92 658 | 2 350 | 95 008 |

## APPENDIX II

Maps of the school administrative region 03 showing:

1) the regional school boards,
2) the secondary schools administered by the regional boards for 03,
3) secondary schools (also in 03) in the immediate Quebec City area,
4) 03 showing areas according to the degree of concentration of low-income families, and
5) concentration of low-income families in metropolitan Quebec

Unfortunately these maps
are no longer available.

# APPENDIX III

## Statistical Information Concerning Mathematics Teachers

| | | Province | 03 |
|---|---|---|---|
| YEARS OF SCHOOLING | 9 | 0.05 | - |
| | 10 | 0.05 | - |
| | 11 | 0.15 | - |
| | 12 | 1.94 | 2.07 |
| | 13 | 5.91 | 8.97 |
| | 14 | 4.71 | 3.10 |
| | 15 | 23.33 | 26.21 |
| | 16 | 19.50 | 21.03 |
| | 17 | 19.35 | 19.66 |
| | 18 | 11.32 | 12.07 |
| | 19 | 6.75 | 6.90 |
| | 20 | 0.25 | - |
| | 21 | 0.10 | - |
| | 22 | 0.05 | - |
| | 23 | - | - |
| | 24 | - | - |
| | 25 | - | - |
| | Unknown | 6.55 | - |
| | Average | 16.05 | 16.52 |

| | | | |
|---|---|---|---|
| YEARS OF TEACHING EXPERIENCE | 1 | 0.10 | - |
| | 2 | 0.35 | - |
| | 3 | 0.20 | - |
| | 4 | 0.50 | - |
| | 5 | 0.50 | 0.34 |
| | 6 | 0.45 | 0.34 |
| | 7 | 0.94 | - |
| | 8 | 1.64 | 0.69 |
| | 9 | 3.03 | 2.41 |
| | 10 | 5.96 | 3.10 |
| | 11 | 6.95 | 4.14 |
| | 12 | 6.05 | 2.76 |
| | 13 | 7.10 | 7.59 |
| | 14 | 8.14 | 9.31 |
| | 15 | 16.97 | 39.31 |
| | 16 + | 41.14 | 30.00 |
| | Average | 16.27 | 16.63 |

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